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Ginseng juice eyed as anti-diabetic dietary supplement

By Stephen Daniells

20/09/2007- **An extract from American ginseng berry may reduce blood sugar levels by 30 per cent and aid weight loss, reports a new study from the University of Chicago using obese diabetic mice.**

If the results are repeated in further studies and are extrapolated to humans, it could mark the arrival of ginseng juice on the dietary supplements market offering potential benefits for the management of diabetes.

"Our data suggest that ginseng berry juice, as a dietary supplement, may have functional efficacy in consumers with diabetes," wrote the authors in the *Journal of Food Science*.

An estimated 19 million people are affected by diabetes in the EU 25, equal to four per cent of the total population. This figure is projected to increase to 26 million by 2030.

In the US, there are over 20 million people with diabetes, equal to seven per cent of the population. The total costs are thought to be as much as $132 billion, with $92 billion being direct costs from medication, according to 2002 American Diabetes Association figures.

The new study used a water extract from American ginseng, obtained from field-grown American ginseng berry collected in Wausau, Wisconsin, and fed this to adult male C57BL/6J *ob/ob* mice for ten days (0.6 mL per kg body weight). This mice model is known to be hyperglycemic, glucose intolerant, and obese, thereby resembling human type-2 diabetes.

The researchers, led by Chun-Su Yuan, measured fasting blood glucose levels on day 0 and day 10 of the study, and report that while blood glucose levels of all the mice were high at the start of the study, supplementation with the ginseng berry juice was associated with a 31 per cent reduction after day 10, from 230 to 157.8 milligrams per decilitre of serum. No significant decrease was observed in the control group (no supplementation with the juice).

"Interestingly, after cessation of the [American ginseng berry juice] administration, its hypoglycemic effect continued," stated the authors. *"On day 20, ob/ob mice still had a significantly reduced blood glucose level (146.6 mg/dL compared to vehicle)."*

Benefits were also observed with respect to body weight after ten days of supplementation with the ginseng berry juice, with an average reduction of 2.5 grams per animal reported (from 76.6 g on day 0 to 74.1 g on day 10. No bodyweight changes were observed in the control group.

"Data from this study demonstrated that oral administration of AGBJ significantly reduced high blood glucose levels and body weight in ob/ob mice," wrote Yuan and co-workers.

"Our results suggest that the hypoglycemic activity of the berry juice may prove to be beneficial in the prevention and management of type 2 diabetes."

The researchers report that the active compounds in American ginseng are dammarane saponins, also known as ginsenosides, and that these compounds are also likely to be the active components in the berry juice. They did measure concentrations of the major ginsenosides using HPLC analysis, and this could be used to develop quality controls for subsequent commercial preparations.

Formulations of ginseng are already established in the dietary supplements market, with the herb typically taken to enhance stamina and reduce feelings of fatigue and physical stress.

The herb has been gaining popularity in Western societies, finding its way into, for example, energy drinks. In the US it is estimated to be the second top-selling herbal supplement, with $62m (€48.2m) in annual sales last year.

Source: *Journal of Food Science*
Published on-line ahead of print, doi: 10.1111/j.1750-3841.2007.00481.x
"American Ginseng Berry Juice Intake Reduces Blood Glucose and Body Weight in ob/ob Mice"
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